

*Scutellum* red-brown, thickly and finely punctured, pubescent.

*Elytra* entirely red-brown, immaculate, once and a third wider than prothorax, narrowing slightly towards apex, rugose, with the longitudinal raised lines on the disk well defined at the base, becoming fainter towards the apex; the apices rounded externally.

*Underside* and *legs*, including femora, tibiæ, and tarsi, entirely and densely clothed with fine, silky, bright golden pubescence; finely and thickly punctured, the tibiæ more coarsely so.

Length 39, breadth 11 millim.

*Hab.* Siam (*Coll. Mouhot*).

This beautiful species differs from *Iletica testacea*, its nearest ally, in the peculiar sculpture of the head, its entirely uniform chestnut colour, and the golden pubescence of its under surface.

XXVI.—*Contributions towards a General History of the Marine Polyzoa, 1880–91.—Appendix.* By the Rev. THOMAS HINCKS, B.A., F.R.S.

[Concluded from vol. xi. p. 182.]

‘Annals,’ May 1884 (p. 361) \*.

*Porella malleolus*, sp. n.

Mr. Waters records this species as occurring in New South Wales (‘Annals’ for July 1889, p. 16). He regards it as a variety of *Smittia Landsborovii*, a view which I confess I am not prepared to accept.

Ibid. (p. 363).

“POLYZOA FROM VICTORIA AND WESTERN AUSTRALIA.”

PEDICELLINOPSIS, gen. nov.

This genus was constituted for a ramified Pedicelline species remarkable for its distinctive habit, its specialized muscular

\* The paging to the close of the “Appendix” is that of the ‘Annals,’ and not of the separate copies.

structure, and its highly developed periderm. On further consideration, however, I am satisfied that the peculiarities of this very interesting form have no *generic* value, and that there is not sufficient ground for separating it from *Barentsia*, Hincks, a genus previously established for the reception of an Arctic species (*B. bulbosa*)\*.

Mr. Busk has taken the same view ('Challenger' Report, part ii. p. 41). While I agree with him in his decision on this point, I am quite unable to follow him when he proceeds to suppress the genus *Barentsia* in favour of his own *Ascopodaria*, a "provisional" MS. name which he had connected with a species of which no description or figure had been published at the time when the genus *Barentsia* was fully characterized in the 'Annals.' That Mr. Busk had "already proposed to establish" a genus *Ascopodaria* (of which I had no knowledge whatever) before my paper appeared could give it no claim to precedence according to the received laws of zoological nomenclature. In point of fact it never was defined until *Barentsia* had taken a place in the literature of the Polyzoa.

*Pedicellina gracilis*, Sars, must be associated with the present form in the genus *Barentsia*, as it possesses the basal concentration of muscular force and a partially rigid or chitinous peduncle.

Ibid. (p. 366).

*Flustrella dichotoma*, von Suhr (sp.).

In his 'Challenger' Report (pt. i. p. 48) Busk removes this species from the genus *Farciminaria*, in which he at first placed it, but still ranks it in his family Farciminariadæ. He adopts the generic name *Verrucularia*, conferred upon it by v. Suhr, who regarded it as a *Fucus*.

My examination of Australian specimens has led me to regard this form as allied to the Ctenostomata rather than to the Cheilostomata. The orifice of the zoecium closely resembles that of the Flustrellidæ, being bilabiate and, so far as I could determine, agreeing in all essential characters with that of *Flustrella*.

In the latter genus the setose operculum is inconspicuous, and I was unable to detect it in spirit-specimens of the present form.

Whatever may be the exact systematic position of this species, I can see no reason for ranking it amongst the

\* Ann. & Mag. Nat. Hist. for October 1880, p. 277, pl. xv. figs. 12-14.  
Ann. & Mag. N. Hist. Ser. 6. Vol. xii. 11

Farciminariadæ, which form anything but a natural group. Indeed, in a natural system such a group could find no place. The characters on which the family is founded are merely zoarial, and the chief point relied upon as a diagnostic is the disposition of the zoœcia round an imaginary axis, so as to form cylindrical branches. Such a family diagnosis would include a miscellaneous and artificial group between whose members there might be little, if any, natural affinity. *Verrucularia dichotoma*, v. Suhr, would be an alien amongst the forms which compose the family Farciminariadæ of Busk.

MacGillivray has noticed the "close affinity" in structure between *Flustrella* and the present form †, and remarks that "it undoubtedly forms a close connecting-link between the two suborders" (Cheilostomata and Ctenostomata); but, "notwithstanding the absence of avicularia and œcacia and the structure of the mouth," he would refer *Verrucularia dichotoma* to the same Cheilostomatous family as *Farciminaria*. No reasons are given in support of this decision, but there is much to be said against it.

The mode in which the zoœcia are disposed and the habit of the zoarium, it is now generally admitted, are not characters which can be relied upon as indications of natural affinity. Agreement in these points is commonly associated with the most significant structural differences. In the present case the two forms in question are distinguished by very different types of orifice and oral operculum. In *Farciminaria* the orifice presents the normal Cheilostomatous character; in *Verrucularia dichotoma* it is distinctly bilabiate, bounded above and below by a chitinous rib, the lower one (probably) connected with a movable lip. This is an important difference, which forbids the union of the two forms in the same family group.

The present condition of my specimens of *Verrucularia* prevents me from completing my study of the structure; but enough has been determined to prove that it must be separated from *Farciminaria*. Provisionally, at least, it may be associated with *Flustrella*, with which it seems to be most closely connected.

Ibid. (p. 368).

*Cellaria fistulosa*, var. *australis*, MacGillivray.

There is no doubt that this form should be accounted a distinct species, as I have suggested †.

\* 'Zoology of Victoria,' vol. ii. p. 348.

† See Waters, 'Challenger' Rep. p. 16, pl. ii. figs. 1-4.

'Annals,' October 1884 (p. 276).

*Menipea marginata*, sp. n.

This species must be referred to *Caberea rudis* of Busk.

The specimens of it on which my description is founded were to a large extent destitute of vibracula. In the first instance, indeed, I could find no trace of them, and, in the supposed absence of this essential character, was not likely to connect the species with the genus *Caberea*.

My attention having been drawn to the remarkable agreement of the two forms in many of the structural elements, I have made a careful re-examination of the dorsal surface, with the result that I have detected the vibracular grooves in a limited number of cases, and in some of them to all appearance imperfectly developed, whilst in a large number of cases not one was met with upon a branch. Only one or two setæ were observed. My specimens show that the vibracular zooids are liable to be very partially developed, or, in some cases, even suppressed.

Busk describes the aperture as "oval;" it is somewhat contracted above and expanded below. He does not mention the very large size of the marginal cells and of the three spines which they bear. This is a striking feature of the species, as is also the line of large avicularia with broad triangular mandible, each on a distinct area, which alternate with the marginal zoœcia.

Ibid. (p. 279).

CYCLICOPORA, gen. nov.

*Cyclicopora praelonga*, sp. n.

This species is identical with *Lepralia longipora*, MacGillivray\*, which was published in 1882, and his specific name must therefore take the place of the above.

Ibid. (p. 280).

*Schizoporella subsinuata*, sp. n.

When I described this species I had not met with specimens of it bearing avicularia; but they have since occurred, and instead of the clause in the diagnosis "*Avicularia* none," the

\* 'Descriptions of new or little-known Polyzoa,' part ii. p. 6, pl. iii. fig. 18 (1882).

following must be inserted:—"Avicularia elongate-oval, rather large, the mandible rounded, irregularly distributed, sometimes placed obliquely above the orifice, sometimes on the lower part of the front wall."

Ibid. (p. 280).

*Schizoporella biturrita*, sp. n.

Waters identifies this form with *Eschara tuberosa*, Reuss. As I have not had an opportunity of consulting the work in which the latter is described, I accept the identification on his authority. The leading features of the species are the tower-like elevations on each side of the orifice, usually bearing avicularia, and the gigantic umbonate oecium. The position of the avicularia, as Waters has remarked, is variable; commonly they are placed at the back of the "tower," but frequently at the sides, the pointed mandible directed upward. In the cells bearing oecia the orifice is larger and has a wider sinus than in those which are not ovicelligerous. The oral arch of the oecium is remarkable for its size.

The variety in which lateral offsets from the "towers" unite so as to form a bridge over the orifice is much more striking than significant. The structural change is very slight and trivial, though it affects materially the aspect of the species. In all essential characters it agrees entirely with the normal form.

The only specimen of the variety which I possess is from Africa.

At one time I was inclined to regard this species as identical with Busk's "*Gephyrophora polymorpha*" ('Challenger' Rep. p. 167), but the examination of specimens from New Zealand has shown that there are most important differences between them, especially in the position and structure of the oecium\*. It need hardly be pointed out that the bridge across the orifice is a character of no generic significance and that the genus *Gephyrophora* must be abandoned.

The New-Zealand specimens of the latter are of small size (less than half an inch in height), erect in habit, the stems cylindrical, slightly branched, trifid at the upper extremity, the surface smooth and somewhat glossy. The small pointed avicularia are borne on the summit of the lateral elevations, the mandible directed outwards.

\* Waters, 'Challenger' Supplement, p. 29.

'Annals,' March 1885 (p. 245).

*Diachoris quadricornuta*, sp. n.

Jullien's species *D. maxilla* \* has been referred to the present form; but in the absence of specimens of the former I should hesitate to identify them.

Ibid. (p. 247).

The footnote may be cancelled; I have already given my reasons for uniting *Diachoris* with *Beania*.

'Annals,' March 1891 (p. 286).

*Flustra spinuligera*, sp. n.

Though I have treated this form as distinct from *Carbasea rhizophora* of Ortmann, there may, I think, be a question whether it should not rather be regarded as a variety of the Japanese species. There is a remarkable similarity between them in most of the leading characters.

The zoecia agree in all respects but one. In *F. spinuligera* the margin bears a continuous line of short spines, and within the margin and just below it there is a line of minute denticles; these are wanting in *C. rhizophora*. But the form of the cell, the orifice, the oecium, and the avicularium are alike in both. When we come to the zoarial characters we meet with some dissimilarity.

The South-African form is unilaminate and erect; the Japanese bilaminate and decumbent, and attached by tubular fibres springing from the dorsal surface.

The marginal spines, as we know, are not very constant among the Polyzoa; the internal denticles might very possibly escape observation. Both unilaminate and bilaminate forms occur within the limits of a species; so that the decumbent habit and the radial appendages would seem to be the most important distinctive characters. Taking into account the perfect agreement of the zoecia in all the most significant elements, we shall, I think, best represent the relationship between the two by ranking *Flustra spinuligera* as a form of *Flustra rhizophora* †.

\* 'Cap Horn,' 74, pl. vii. fig. 3, pl. xi. fig. 4.

† The genus *Carbasea* is founded on a very trivial zoarial character, and, in my judgment, should be abolished or restricted to such of the forms now included in it as may represent a distinct specific type.

Ibid. (p. 289).

*Schizoporella concinna*, sp. n.

There may be a doubt as to the genus to which this species is referable. At first sight the orifice seems to agree in structure with that which is characteristic of *Schizoporella*; but there are peculiarities which may create a doubt. The sinus is placed in the centre of a thin raised lamina which overhangs the orifice below, taking the place of the lower margin, and *continuous with the sides of the orifice*. Immediately behind this lamina is "the ridge-like elevation of the cell-wall," which is carried up along the sides of the orifice \*. The true operculum, which is membranaceous, extends to the top of the basal lamina, where it is crossed by a very distinct hinge-line in connexion with two lateral denticles. A membranous extension of the operculum passes downward behind the raised lamina. In some respects the orifice of this species bears a resemblance to that of *Lepralia*; but as the lamina which carries the sinus seems to be distinctly continuous with the side-walls of the orifice, there seems to me to be no structural difference of any significance between this form and *Schizoporella*.

Ibid. (p. 290).

*Schizoporella bimunita*, sp. n.

In this species one of the large avicularia on the front wall is not unfrequently absent.

A very fine specimen, obtained by Miss Jelly from Port Elizabeth, is somewhat fan-shaped, borne on a short thick stem; the surface is traversed by rib-like lines, which radiate from the circumference towards the stem. The large oöcial cells form conspicuous groups.

Ibid. (p. 296).

*Lepralia lancifera*, sp. n.

It has been suggested that this form may be identical with *Hemeschara imbellis*, Busk, described and figured in his 'Monograph on the Crag Polyzoa.' This species had been previously characterized by Milne-Edwards under the specific name *pertusa*; but as this designation had been already

\* See 'Annals,' ser. 6, vol. vii. pl. vi. figs. 2, 2 a.

applied to another species, Busk's name must displace it. Mr. Waters has obtained *Lepralia imbellis* from the New-Zealand Tertiaries\*.

As to the supposed identity of *L. lancifera* and *L. imbellis*, I hesitate to give a decided opinion; but on a careful comparison of Busk's description and figure of the latter with a fine specimen of *lancifera* from South Africa, for which I am indebted to Miss Jelly's kindness, I have noted the following differences between them, which are by no means unimportant. In Busk's diagnosis (which is meagre and insufficient) the cells are merely characterized as "ovate, punctured, especially round the border; subumbonate in front, with an orifice having a straight lower border and simple peristome." It is obvious that there is nothing very distinctive in this description; it would apply to a multitude of forms. One clause of it, however, is certainly inapplicable to *L. lancifera*—"subumbonate in front." Probably the most striking feature of the latter is the large umbonate rising of the front wall below the orifice, on which the long lanceolate avicularium is borne. Referring to Mr. Busk's figure, we find no adequate representation of this structure. In *L. lancifera* the zoecia are bounded by strongly marked raised lines, which are not present in *L. imbellis*. The oecium of the last-named, as shown in Busk's figure ('Crag Polyzoa,' plate iv. fig. 6), differs widely from that of *lancifera*. The entire absence of all traces of avicularia on the fossil form, except on the sub-oral umbo, whilst they are present in profusion on the recent species, especially in the neighbourhood of the oecium, is another difference of some significance. On the whole, without venturing to dogmatize, I am inclined to regard the two forms as probably specifically distinct †.

## XXVII.—New Geometers.

By Col. C. SWINHOE, M.A., F.L.S., &c.

THE species described in this paper will appear in the second volume of the 'Catalogue of Moths in the Oxford University Museum'; and as the publication of this book will be delayed, from unavoidable causes, for some months, the following new species are now published to ensure the types to the Public Museums of London and Oxford.

\* "On Tertiary Cheilostomatous Polyzoa from New Zealand," Quart. Journ. Geol. Soc. for February 1887, p. 40.

† Further investigation of the fossil form is much needed.